DOCUMENT RESUME

ED 262 880 PS 015 382

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TITLE Literacy Learning in Early Childhood.
PUB DATE [84]
NOTE 33p.
PUB TYPE Viewpoints (120) -- Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Communication (Thought Transfer); *Curriculum Development; Early Childhood Education; Educational Improvement; Language Acquisition; *Language Processing; Language Skills; *Literacy; *Psycholinguistics; Sociolinguistics; *Young Children

ABSTRACT

This paper is a synthesis of the recent research about language and literacy learning, the universal cognitive strategies used in language processing, and the educational implications of these new insights on literacy learning. Four universal cognitive strategies used by experienced written language users--textual intent, negotiability, fine tuning language with language, and risk taking--were used by young children ages 3 to 6 in the research tasks. How young children used these strategies is discussed and extensively illustrated. The findings suggest that experience is a key to learning. Educational implications of these findings are discussed, especially changes in teachers' understandings of total language development and learning in the alternate communication systems of math, drama, art, and music. These new beliefs necessarily result in a need for an open communication curriculum which fosters the expansion of the learner's literacy potential. (Author/DST)

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Literacy Learning in Early Childhood

by

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Abstract

"Literacy learning in early childhood" is a synthesis of what recent research tells us about language and literacy learning; the universal cognitive strategies used in language processing; and the educational implications from these new insights on literacy learning.

Four universal cognitive strategies, text intent, negotiability, fine tuning language with language and risk taking, used by experienced written language users, were strategies used by the young children ages 3-6 in the research tasks. How young children used these strategies is discussed and illustrated. These findings suggest that experience is a key to learning. Educational implications of these new beliefs call for changes in teachers' understandings of total language development as well as learning in the alternate communication systems of math, drama, art, and music. These new beliefs necessarily result in a need for an open communication curriculum which fosters the expansion of each learner's literacy potential in the many ways of knowing.

Language is a natural human function. Language is social. Humans learn oral and written language through interactions with others and through transactions which occur within the language events. Language learning is learning communication skills, is learning how to think, and is developing schema for organizing one's world. Language curriculum should focus on the means to expand one's literacy potential through experience and discovery.

Six years of observing and participating with children ages three to six in their initial encounters with print have resulted in a new definition of the evolution of language and literacy. Harste, Burke, and Woodward (1983, p. 7) define the evolution of literacy as a socio-psycholinguistic process. Process is defined as:

> By process we mean the cognitive stances which language users assume, and the strategies or cognitive activities which language users engage in, during a literacy event. We see language as sociologically rooted and language learning as only understandable when viewed within its social context. Psycholinguistic processes have their genesis in the literacy demonstrations made available to the language learners as they encounter the members of their interpretive community engaging in the psychological and sociological actions associated with literacy.

Children's communication efforts generated by our research tasks provide functional demonstrations that in language learning all communication is naturally multi-channeled and revolves around the language learners' lifelong attempts to organize and conceptualize a personal world. The

language user, adults and children alike, have universal cognitive strategies for use in language processing. These cognitive strategies include textual intent, negotiability, fine tuning language with language, and risk taking. The children's communication demonstrations provide a foundation for a holistic language curricula.

This paper will focus on what research tells us about the language learner and literacy learning, the universal cognitive strategies used in language processing, and the educational implications resulting from new insights on literacy learning.

The Language Learner and Literacy Learning

As Dewey (1938) and Vygotsky (1978) have told us, all learning is social. From birth through life, humans are having experiences with others. During these experiences, the individual is continually developing the mental schema for organizing his conceptualizations and new discoveries about his world which includes his language world.

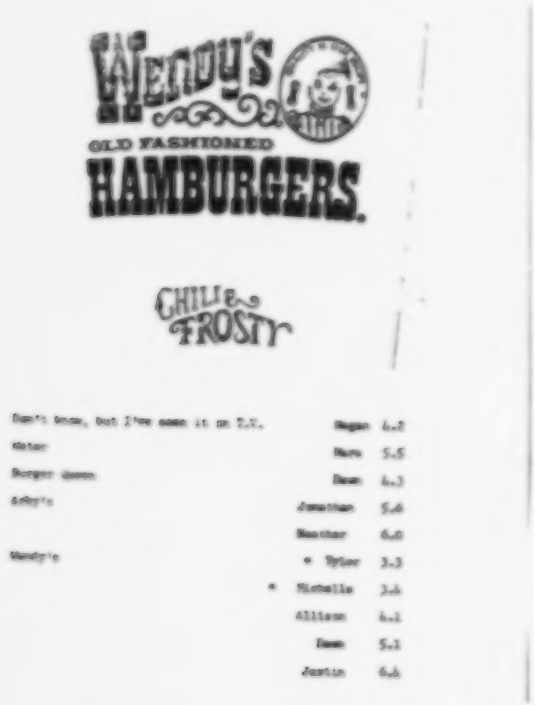
Halliday (1975) and Vygotsky (1978) have emphasized the social nature of language learning. This has led language researchers to look not only at the psycholinguistic processes occurring in language events but also the social aspects of language learning.

Function of Experience in Learning

Experience is the key in learning. The kind of thinking a child does and the language used depends on the quality of experiences the child has had. Figure 1 shows the responses children made to the environmental print,

the Wendy's cup. Wendy's had been open only a few weeks when the print was presented to the children. Both Tyler, age 3.3, and Michelle, age 3.4, read the print as Wendy's. From the responses of these three year olds compared to the older children, ages 4 to 6, it is clear that experience not age influenced the child's response to that print setting.

Figure 1. Responses to Environmental Print Setting of Wendy's.



Vygotsky (1978, p. 89) proposes a notion of a "zone of proximal development." In this belief, he states "that the 'only good learning' is that which is in advance of development." The zone of proximal development is the distance between what the child can do on his own and what the child can do with the help from adults and/or peers. Learning does not lag behind

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development but is interrelated. Learning is going on all the time and not only at some biological transition period as Piaget (1969) believed. The child learns as he goes from his potential development to his actual development. This learning from the bottom to the top of the zone is facilitated by social interaction. Experience is the facilitator of learning and not the developmental level.

Language Foci is on Meaning

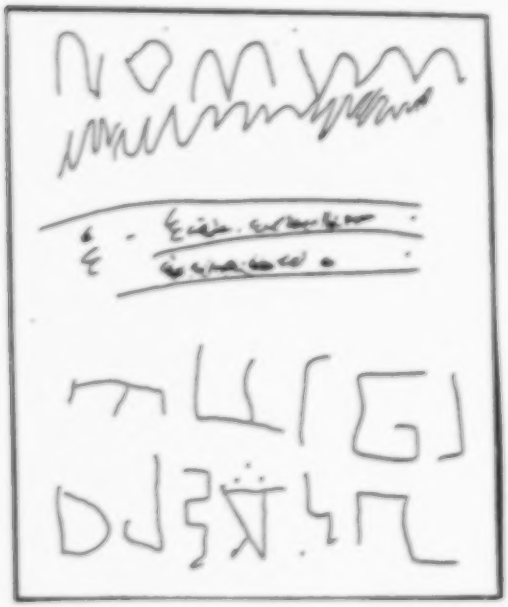
Language research has shown that before schooling, children are learning language naturally. Brown (1973) and Cazden (1972) reported that young children by age four understood and used intuitively the different systems of oral language. Halliday's research (1975) demonstrates how an infant late in the first year of life is understanding and using various functions of language. He proposes that children learn how to mean by learning the functions language serve in use. Clay (1975), Dyson (1984), Goodman & Goodman (1979), and Harste, Woodward, Burke (1984) have all reported that young children in a literate society are aware of the meaning of print as well as its functions and forms, before instruction begins in school.

Learning language is the search for meaning in signs. Meaning is a result of sign interpretation within a language event. Meaning does not reside in the environment (in the print on the page in a book, or in the environmental signs), nor is it in the head of the learner, but it is the result of the interpretative operations of the learner in making sense of the particular language situation.

Children are learning language and the sign system from adults in their interpretive community. The graphic signs used by three children in

the uninterrupted writing task--an American, an Israeli, and an Arab--illustrate how young children, before they use conventional signs of their interpretive community use signs which closely resemble those of their social community. Dawn's looks like English. Nageeba's looks decidedly Arabic, and Ofer's looks like Hebrew.

Figure 2. Multicultural Writing Samples: Composite.



Dawn
United States

Nageeba
Saudi Arabia

Ofer
Israel

(Harste, Woodward, Burke 1984, p. 92)

The child who reads the picture of the Bloomington sign with an arrow as "go this way" has had available the cueing systems of name, color, shape, and graphics available in the sign. Environmental print in its natural setting is easier for the child to interpret than when it is reduced to primary type. Isolated print makes learning more difficult. Natural reading and writing settings where cues are allowed to transact with each other, are crucial in understanding written language growth.

What are the cue systems of literacy and is there a special order in which they occur? Past research on literacy have studied the cue systems, semantic, syntactic or graphophonemic system in isolation of each other. Cazden (1972) reports that children by age four understand intuitively how the semantic, syntactic and phonemic systems of oral language operate. Our data (Harste, Burke, and Woodward, 1981, 1983) support the idea that the foci of written language is also on meaning, but the cue systems operate in conjunction with each other and not independently. Cue systems operating in conjunction with each other are important sign systems. To measure success and proficiency of cue systems, our data suggest that it is important to look at how the child orchestrates these sign systems to mean both in oral and written language.

In our data, pragmatics became an important cue system for children in conjunction with the other cue systems. To look at language learning and to understand the cognitive processing, we found that we do it in terms of the situational and cultural contexts in which the children are using their cognitive and language processes.

Language is a social event. Each language event assumes a speaker and a listener or a reader and a writer. Participants in a language event are tied also by the pragmatics. The rules for letter writing are different than the rules for recipe, story, or plan writing, to name a few. The pragmatics set up an anticipatory response for how to respond in particular language contexts. This concept will be discussed more fully in the strategy of negotiation section.

Universal Cognitive Strategies Used in Language Processing

In our studies of young children's knowledge of written language, data support the finding that young children understand and use key cognitive strategies thought to be only part of the knowledge base and response repertoire of older children and adults. These strategies are cognitive universals of language processing which are the language users' resources in making meaning in literacy encounters. In the next section, I shall describe each of these cognitive strategies and present children's demonstrations of their use as the children did for us as researchers.

Textual Intent

The strategy of textual intent involves the expectation that written language will be meaningful and will make sense. But graphic displays are context specific. For the print to make sense, the reader must have identified the context. As young children encounter graphic displays in a variety of contexts (books, signs, products, etc.), they develop schema for both the expectation of meaning and function, as well as the expectation of the kind of print, the style of print, and the semantic and syntactic structure of the print.

Writing and reading products produced by children ages three, four, five, and six are often viewed as initial attempts at writing. In other words, knowledge about writing is being learned in these encounters but the "real language" or cognitive processes have not emerged as part of my written language repertoire of responses. Real language is when my products look like conventional reading and writing.

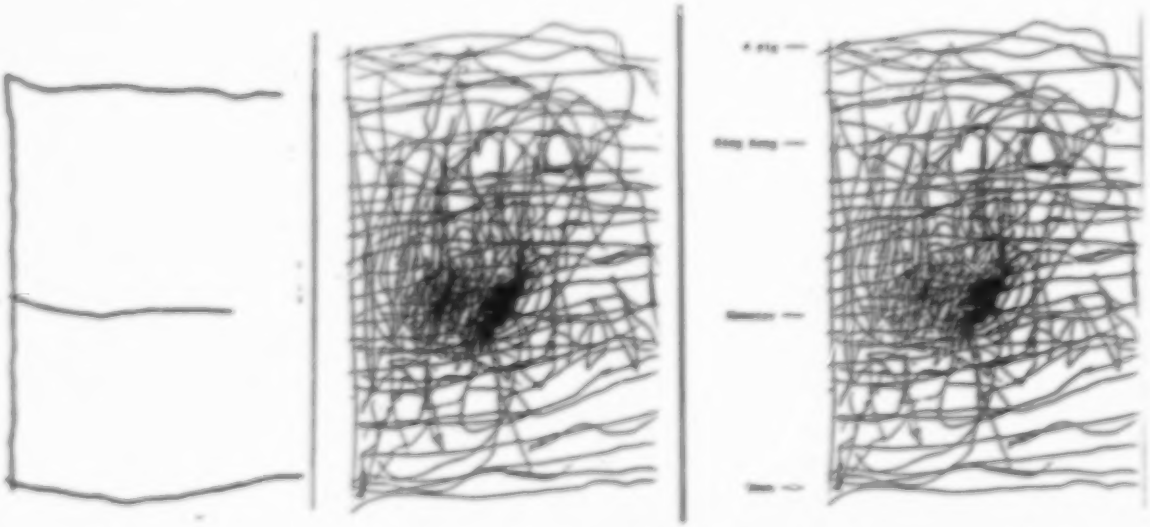
Children as young as three had a good understanding of what language is in its oral and written form. In written language events, they intuitively

demonstrated the strategies they had to access meaning in print, to learn through the event, and to take social action as a participant in the event.

The three year olds in the Harste, Burke, Woodward studies (1981, 1983) demonstrated that they had the intent to mean before they began writing or negotiating to drawing. In the uninterrupted writing task, children were asked to write their name, to write anything else they could write and to read what they had written.

Figure 3. Uninterrupted Writing and Reading Task: Terry, age 3.

Step 1 Step 2 Step 3



(Harste, Burke, Woodward, 1981, p. 141)

In Figure 3, we observe Terry, age 3, writing his name (an alphabetic E), anything else he can write (personal cursive marks on the paper), and reading what it says by pointing to the place in the writing where it says it.

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Figure 4. Uninterrupted Writing and Drawing Tasks: Terry, age 3. Composite.

(Harste, Burke, Woodward, 1981, p. 140)

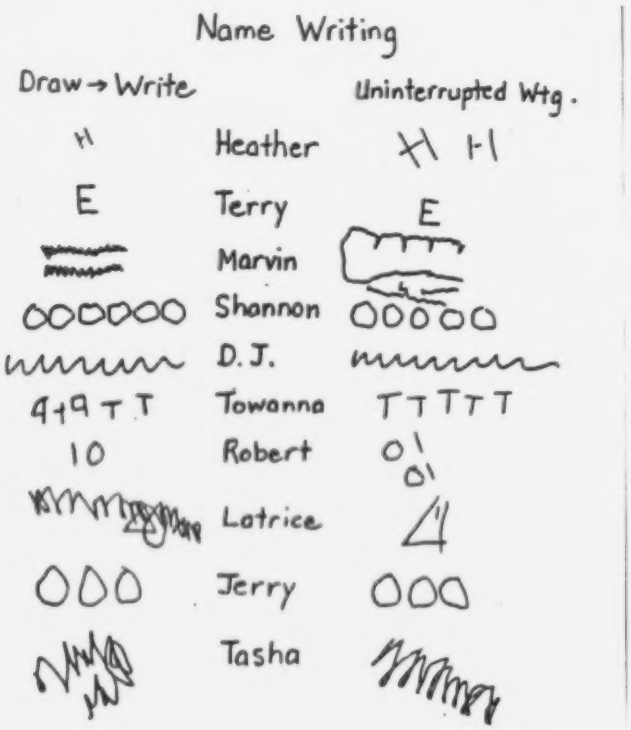
As we see from Figure 4, even though the writing and drawing representations were not conventional to the adult eye, the child had differentiated between writing and drawing. Their markings were intentional and purposeful.

Vygotsky (1978) discusses the evolution of writing. In beginning writing, the child makes a mark and then labels it. This process is conceptualized as object over meaning. The movement of the pen is not directed to a specific end, therefore, it is not intentional. He contrasts this behavior to the older child or adult who says before writing, "I'm going

to write about this topic" and then does so. This process is conceptualized as meaning over object. Vygotsky does not make it clear when this change occurs but our three year olds demonstrated that they were writing from a meaning over object perspective.

Each of the three year olds had conceptualized a symbol for their name. From Figure 5, we can see that they held pretty consistently to their symbolic representation of their name at this time as they engaged in different writing tasks.

Figure 5. Name Writing in Uninterrupted Writing and Drawing Tasks: Three Year Olds.



(Harste, Woodward, Burke, 1984, p. 18)

Young children's responses to environmental print showed textual intent. Figure 6 shows examples of the kinds of responses given to the print setting of the Crest Box or the picture of the Stop sign.

Figure 6. Reading Environmental Print

Print Setting: Crest Box		Print Setting: Picture of Stop Sign	
Response 1	Crest	Response 1	Stop
Response 2	Toothpaste	Response 2	Danger
Response 3	Brush Teeth	Response 3	Go This Way

Each of the responses for the particular print setting was semantically appropriate for the kind of print setting. All the responses for Stop were sign directions. The responses for Crest were related to Crest as toothpaste and brush teeth.

In the case of syntacts, the children's reading responses to environmental print looked different in text intent from their answer to the question "What can you tell me about this?" The three year olds showed this difference just like the children five and six years of age (see Figure 7).

Figure 7. Environmental Print Responses to Band-Aids

Reading Responses	Speaking Responses
What do you think this says?	Tell me some of the things you know about this?
Response 1. Band-Aid	A band-aid that you put it on when you are bleeding.
Response 2. Band-Aid	If you want band-aids on, your mommy will give you a Band-Aid.
Response 3. Stick on the sore.	You stick it on the sore.

We were interested in the children's semantic responses to the print setting. By studying their reading responses, we were surprised to find that almost all the responses looked semantically like things one could find in environmental print.

We developed a semantic features taxonomy for each environmental print setting and a similar taxonomy for coding the semantic features of the child's responses.

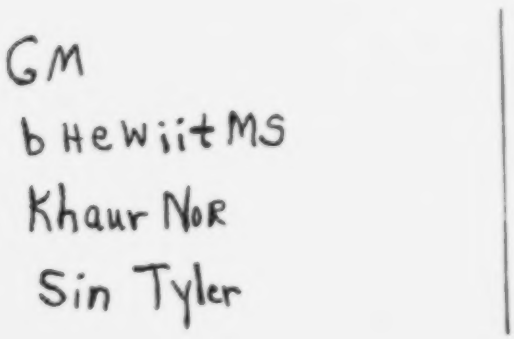
Figure 8. Environmental Print Setting, Semantic Features of Pring Setting, Children's Reading Responses.

Print Setting	Semantic Features of Print Setting	Reading Responses
Jello Box	4½ servings	Raspberries 3 year old
	pie recipe	Eat it. Jello 3 year old
	gelatin	Strawberries 4 year old
	Jello	Pudding 4 year old
	Strawberry	Pudding-Strawberry 4 year old
		King's strawberries 5 year old
		Jello pudding 6 years old

In Figure 8 we can see that the children's reading responses could be coded within the framework used by adults to semantically organize environmental print. This was true of 99 percent of the children's responses to the environmental prints question, "What does it say?"

Tyler, age six, wrote a letter to his grandmother using his personal manuscript for the salutation and text.

Figure 9. Tyler's letter: age 6 years.



He read his letter, "Grandma, Beware of monsters, signed Tyler." Tyler demonstrates that he understands and uses the rules of letter grammar, the salutation, message, and the signature. If we looked only for conventional forms in the product, we would have missed all this first grader knows about letter writing and how to use language in this particular context. Conventional signs are learned as one uses written language in a functional way.

Negotiation

Negotiation is a strategy used by all language users. To understand the strategy, one must understand that language is a social event and not an act.

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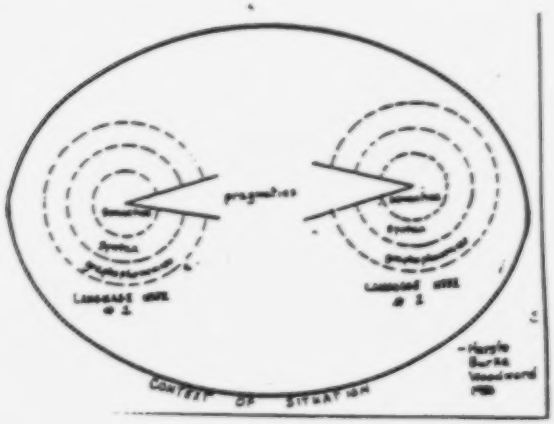
Figure 9. Language as a Social Event



Writers assume readers. Speakers assume listeners. Language occurs between individuals in language events over time and involve pragmatics and semantic moves made by the language users in their selection, interpretation and transmission of information.

Pragmatic Negotiation:

Each context of situation, reading environmental print, book reading, letter writing, to name a few, have their rules (the pragmatics) for the appropriate responses in that particular situation.

In the reading environmental print task, some children negotiated to responses other than reading. In reading the print setting, a Kroger milk carton, the responses, "a milk box" or "some milk goes in there" are negotiated responses referring to what it is or what goes in there.

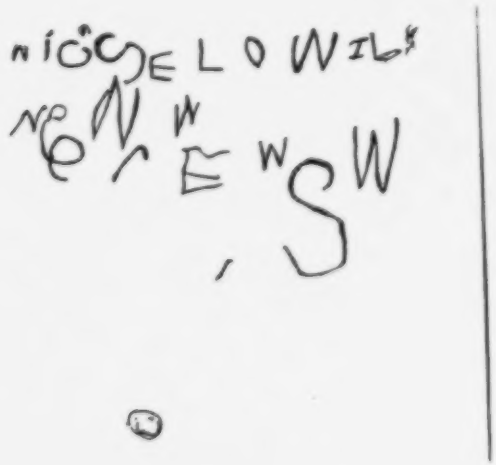
In reading the environmental print setting of Kroger cottage cheese in primary type, one child responded by naming the letters. Another child responded, "It looks like the alphabet except it doesn't start with A."

These children in their search for meaning focused on letters of the alphabet rather than on "What does it say?"

Before coding responses to environmental print, we had to determine pragmatically if the children had answered the question. "What does this say" by engaging in the reading contract. The children did have other response options available such as: "I don't know", give no response, read letters or negotiate the contract by answering another question as what it is, what it does, or what goes inside it, etc.

Young children use pragmatic negotiation as they read text which they have dictated to a scribe. In dictation, they state "They're airplanes." They read the text as "They are airplanes." For the letter writing task, each child received a letter from the person who escorted them to the research setting. The child was asked to read the letter received to the researcher. After the letter was read, the child was given a paper, pen, and envelope and asked to write a letter in response.

Figure 10. Letter Writing: Jason, age 5.

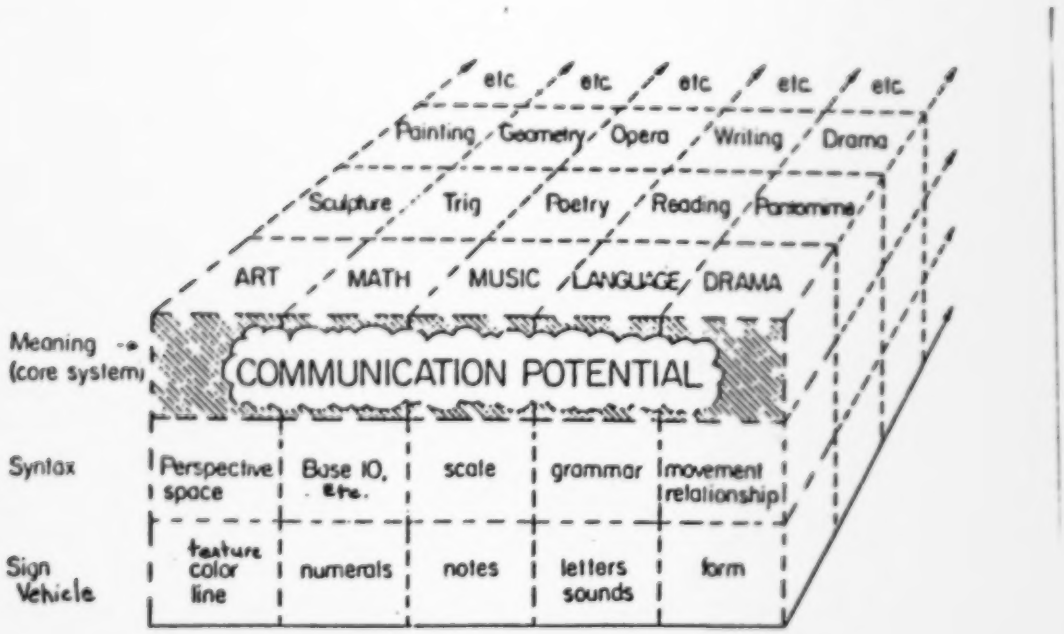


In this letter writing task, Jason negotiated to a typical school task of focusing on the letters of the alphabet. When asked to read his letter, he read naming the letters of the alphabet. From this one language event with letters we cannot generalize to what Jason's knowledge of letter grammar is. All we can say is that in this instance, he negotiated to another letter task with which he felt comfortable.

Semantic Negotiation:

Harste, Burke, Woodward (1981, 1983) research findings support the belief that all communication is a multi-model event involving the alternate communication systems of art, music, math, drama as well as the alternate expressions of language (see Figure 11). The knowledge of alternate communication systems enhance our communication potential.

Figure 11. Communication Potential Model



(Harste, Burke, Woodward, 1983, p. 43)

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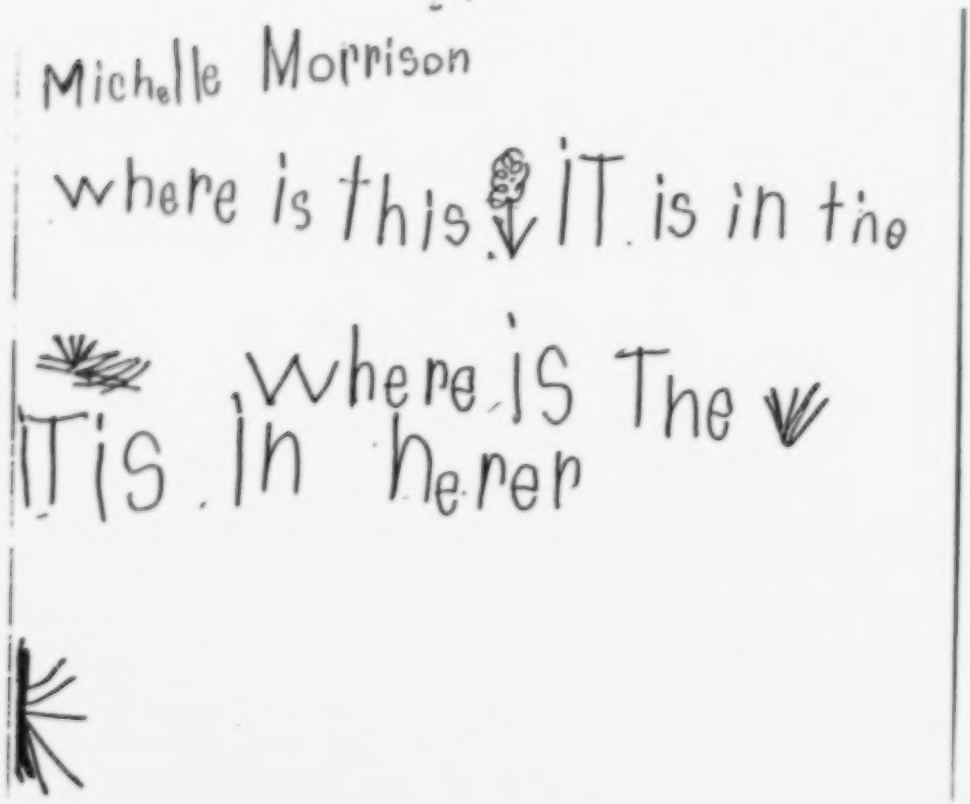
In the research tasks, children freely used the semantic negotiation strategy. In the uninterrupted drawing task, Megan was asked to draw a picture of herself (see Figure 12). As she drew her right hand, Megan realized she had too many fingers. To check the correct number of fingers before crossing some out, she used the song "Thumpkin" as her guide. To check her toes, she turned to a number verse, "One little piggy, two little piggies, . . . " To represent herself further, she continued to employ the number system by drawing four flowers and writing the numeral 4, her age.

Figure 12. Uninterrupted Drawing: Megan, age 4.

Michelle, age 6, was asked to write anything she could write in the uninterrupted writing task. When she came to a word she was unsure of the spelling, she asked to get a word card. When that request was not accepted, she asked if she could draw a flower. The researcher responded by saying, "Write it the best you can." Michelle proceeded by negotiating to drawing when she was unsure of spelling (see Figure 13). Her product closely resembles rebus writing commonly found in early childhood reading texts.

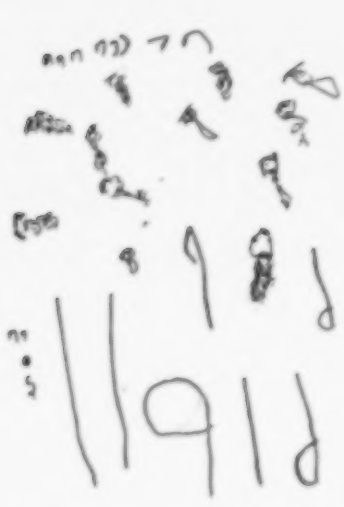
Figure 13. Uninterrupted Writing: Michelle, age 6.



In the story writing task, Kibi, age 4, represented her text by using different graphic forms. She used a personal manuscript as well as pictures to represent her meaning.

Figure 14. Story Writing: Kibi, age 4.

Story Writing



Reading Story

"Two . . . all little bears.
One girl and a boy" as she moves her hand over the print.
"All the bears, look it, look it" and points to the figures drawn.
"Look it . . . baboons, baboons will eat you up."

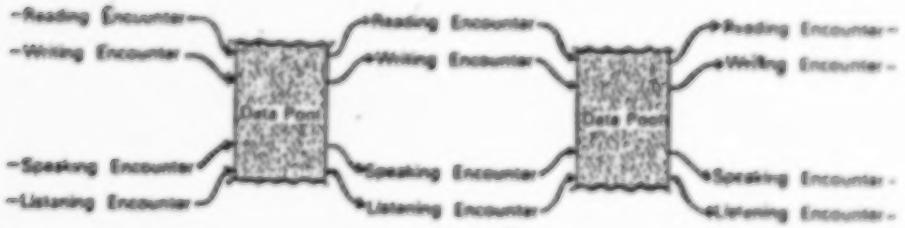
Not only does Kibi shift to drawing in writing her story, but she also demonstrates that she is using another form of negotiation by shifting to different voices in reading her text. She reads in third person, and imperative. The product plus the reading of the text in conjunction with each other clarifies for us the cognitive processes which Kibi was using in the task.

From the demonstrations, it is clear that our young language users were aware of the cognitive strategy of negotiation and used it in their written language encounters.

Fine Tuning Language With Language

Research data (Harste, Burke, Woodward, 1981, 1983) supports the belief that the language expressions (listening, speaking, reading, and writing) are learned in a parallel rather than a sequential developmental pattern. This latter view of learning, a sequential, developmental pattern, is the premise on which most of our oral language and reading, writing curricula are based. This new view seriously challenges the existing notion on the supremacy of oral language in written language development. The model for conceptualizing the parallel development of the language expressions is called "the linguistic data pool."

Figure 14. The Linguistic Data Pool



The "linguistic data pool" model posits the following ideas:

1. What we learn from a language encounter feeds a common pool of linguistic data which can be drawn upon in a subsequent language encounter;
2. Oral language encounters provide data for written language encounters and vice versa;

3. Growth in a given expression of language must be seen as a multi-lingual event; in reading for example, hearing a set of directions read, encountering written language with others, listening to a book, talking about a newspaper article, or attempting to write your own story, all support growth and development in literacy.

(Harste, Burke, Woodward, 1981, p. 45)

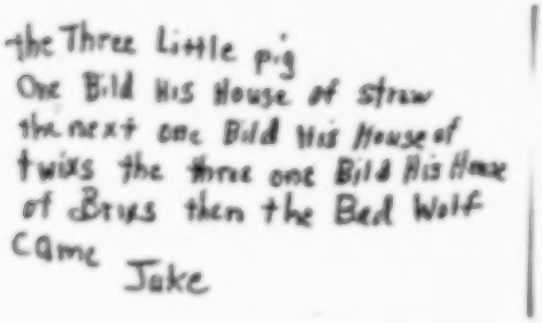
Children at a young age understand and use the strategy of fine tuning language with language. Hearing stories told and reading a book with others helps the child conceptualize what a story is and what are the grammars of stories. Children learn early that there are informational stories and fictional stories. When asked to write or dictate a story, it is not uncommon for them to draw from past story experiences in composing. Alison, age 4, dictated her version of "The Enormous Turnip" when she was asked to make up a language experience story (see Figure 15). Jake, age 6, in the story writing task, wrote his version of "The Three Little Pigs" (see Figure 15).

Figure 15. Story Writing: Composite.

Language Experience Story Dictation: Alison, age 4

> One upon a time there was a turnip. The granddaddy came out and tried to pull out the turnip. He called the grandma and they both tried to pull out the turnip. The grandma called the granddaughter and they all three tried to pull out the turnip. The granddaughter called the puppy. They all four tried to pull out the turnip. The dog called a beetle. The other beetle called another beetle and another beetle called another beetle. And all seven tried to pull out the turnip. The end.

Story Writing: Jake, age 6


the Three Little pig
One Bild His House of Straw
the next one Bild His House of
twigs the three one Bild His Hous
of Brigs then the Bad Wolf
Came
Jake

Both Jake and Alison are building stories off stories they know. From experiences with stories, they are learning how stories are organized. Fictional stories have protagonists, a setting, initiating events, attempts, consequences, and responses. Children use these organizational structures as they grow in their ability to write fictional stories.

To understand print, one must have seen print, seen people reading, and seen people writing. As previously discussed, children need to be exposed to oral and written language in its many contexts in order to know the rules governing language response in the various contexts of a situation. Before writing is represented conventionally, children are making graphic symbols

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to sign their names or other ideas they wish to communicate. Their reading of their writing illustrates for us their use of the systems of language as well as general world knowledge they have.

The linguistic data pool model illustrate well the parallel development of the language expressions. This model needs to be extended to include the parallel development of all the alternate communication systems of art, math, music, drama discussed in the semantic negotiation section of this paper. As an extended conceptualization it could then be called, "communication data pool".

Risk-taking

Risk-taking is the strategy in which the language user is testing predictions and hypotheses about language and how it operates. It is a strategy demonstrated by successful language users. Language is an open sign system. To derive meaning from a language situation, the language user must actively interpret that particular language setting. In understanding written language, meaning for the language user is his mental setting. What are the anticipatory or hypothesis testing responses used in attempting to make sense of a print setting? In risk-taking, the language user is free to experiment with how the language works in a particular context. Children seem to be most interested in testing out their latest language discoveries.

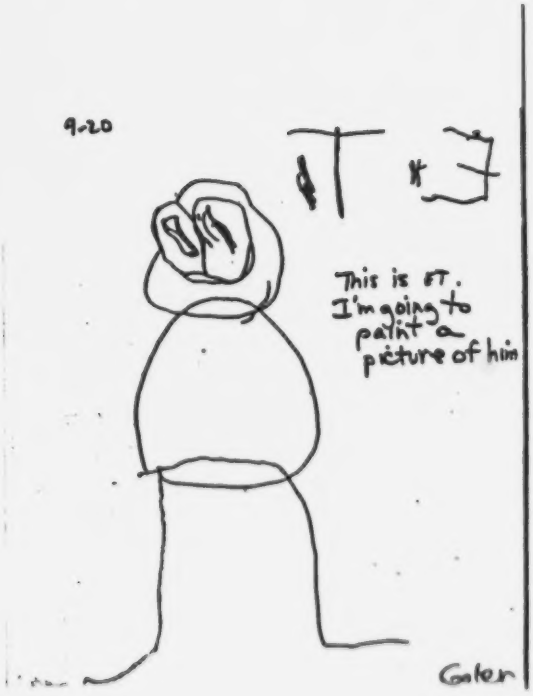
When you ask three and four year olds to write, they pick up a pen and write. These younger children appear to be freer risk-takers than the five and six year olds in our research.

In the nursery school, children were asked to plan at the beginning of each day. In Plan 1, Galen drew E.T. and wrote E.T. on his paper.

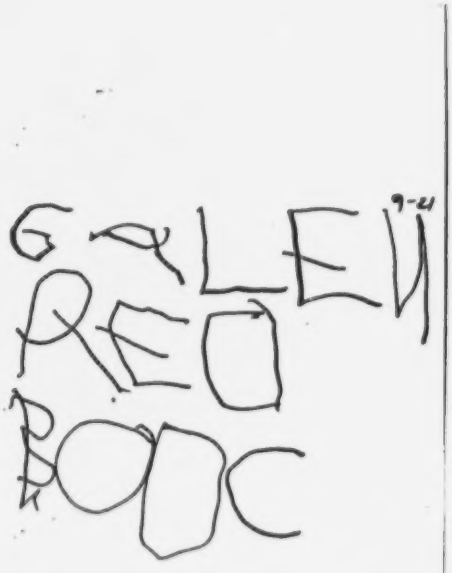
He read his plan, "I am going to paint E.T." Galen used both drawing and writing to write his plan for going to the art center. The next day his plan was to read a book. This plan was written with only words, REd Booc. Galen felt free to draw from among his communication options in writing his plans.

Figure 16. Planning: Galen, age 4.

Plan 1

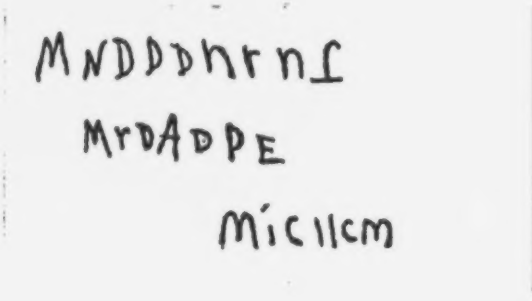


Plan 2



Michelle was asked to write a letter to her Grandmother. She took pen in hand and wrote her message and signature using her personal manuscript. She read her message, "Next summer I'm going to King's Island. Michelle." Michelle shows us that she understood letter writing and letter grammar format.

Figure 17. Letter Writing Task: Michelle, age 4



As readers and writers, the older children were much more constrained by their concern for writing the conventional form or reading a one-to-one correspondence with words on the graphic display. These children would say, "I can't read" or "I can't write." In asking seven year olds to write, many responded, "But I can't spell." By telling them to write the best they can and not to worry about spelling, every child has written. When asked to read what they have written, no child has said he/she could not read.

In writing, these children are all testing out different hypotheses about spelling, syntacts, and punctuation to name a few, all in their search for expressing meaning. This risk-taking strategy is helping them grow in writing as well as in reading. Constraints for correctness can be as debilitating to writing as to reading.

Vygotsky (1978) presents a cogent argument for the process of risk-taking.

> He maintains that under known conditions the language user's responses are predictable and hence safe. Under such conditions, rather than learn new rules, what the language user is doing is confirming old rules. When things go wrong; that is, when the

> expected relationships or known rules do not hold, the language user is forced to develop new rules and new responses to cope. To live within existing rules and predictable patterns is not to grow. It is only under conditions where all of the relationships are not known that language users must scamper to outgrow their current selves. In this process they identify new patterns and relationships and, in Vygotsky's terms "become a head taller than their current selves."
>
> (Harste, Burke, and Woodward, 1983, p. 153)

Risk taking is a strategy which challenges your potential to grow. It frees the language user from playing it safe, to test a new insight and to move to higher levels of literacy.

Educational Implications

The Teacher's Role in the Child's Language Learning

In a "child as informant" curriculum, teachers would follow a socio-linguistic and psycholinguistic orientation to language learning. They would believe that children are discovering and organizing for themselves their knowledge of the world and of language. They would understand that young children are using the same principles and strategies used by adults in language encounters as demonstrated by the Harste, Burke, and Woodward data.

Teachers would understand the social nature of learning and would value the interactions they are having with children in all kinds of natural language and communication experiences. As Smith (1982) and

Vygotsky (1978) suggest children learn through the demonstration of others (parents, teachers, peers, etc.) as they participate in language encounters. Vygotsky (1978) emphasizes the point that young children must see the need for written language for it to be learned and used.

Teachers would understand that how a language user uses language in a particular language transaction depends on the past experiences of the user, the context of situation (the pragmatics), the rules governing language usage in that situation, as well as the different stances and moves each of the participants make during the event. As teacher work collaboratively with their children, they will observe the children's demonstrations of their latest language discoveries being worked on. Reflecting on their observations will lead to new insights on language learning which will be used in curricular decisions.

Teachers would encourage, support, and guide children as they provide and interact with them in the many functional written language units available in the classroom. They would see their role as the curriculum builder.

A Whole Language Curriculum

In a transactional view of learning, curriculum is open, process oriented and continually evolving. As new data emerges, the curriculum changes. The goal of language curriculum should be for the exploration and expansion of communication potential. It should be a curriculum that is developed to support each child in the process of using and discovering his communication potential (oral and written) as they work on expanding their knowledge of the world. Curriculum involves the mental trip a child takes in any language event including the responses. As children inform, we the teachers need to

encourage, support their continuing learning by providing the multiple ways to use reading and writing in a functional way.

Language research has shown that children learn language naturally in the process of exploring and discovering their personal and social world. As children engage in language encounters, they are not only learning language, they are learning about language and through language (Halliday 1975).

A transactional view of language assumes sociological and psychological variation. As the reading of environmental print indicated, the same surface experience resulted in different language events and experiences for the different participants. What children attend to in a particular language event is what they are personally ready for cognitively and linguistically.

In curricular planning with the child as informant, it is essential to accept language variation in use as well as what is learned by different children in a particular day. By accepting variation, we can value and can help others to value the child's current achievements in ways of knowing and communication usage. Literacy learning is broader than language knowing. It needs to include the ways of knowing in the alternate communication systems. For a whole language curriculum serves as a vehicle for the expansion of each learner's discoveries, understandings, and communication potential.

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